MSDS - Material Safety Data Sheet

Section 1- Chemical Product and Company Identification

Product: Valve Regulated Lead Acid Battery Common name:
Valve Regulated Lead Acid Battery

Trademark: ENERPLUS

Approved by:

Manufacture: Shenzhen Center Power Tech Co., Ltd.

Address: Center Power Industrial Park, Tonfu Industrial District, Dapeng Town, PC. 518120, Shenzhen, China

Post Code: N.A Fax No: N.A Emergency Telephone: 86-755-84318088

Section 2- Composition/Information on Ingredient

Chemical Name	CAS No.	In % By Weight	Symbols	R-Statement	H-Statement
Lead/Lead Oxide (Litharge)/Lead Sulfate	7439-92-1	70-80 %		R23 R25	
Calcium (lead Calcium alloy)	7440-70-2	<0.15%	--		
Tin	7440-31-5	<1%	--		
Arsenic (inorganic)	7440-38-2	<1%		R22 R25 R36	H304,H310 H400
Sulfuric Acid (Battery Electrolyte)	7664-93-9	10-15%		R21 R22 R35 R36 R37 R38	H290, H314
Separator Material	65997-17-3	5%	--	--	--
Polypropylene	9003-07-0	5-10%	--	--	--

Section 3- Hazards Identification

Fatalness:
Basically non-toxic during normal use. Do not open battery. Avoid contact with internal components.
And exposure to the ingredients contained or their ingredients products could be dangerous

Invasion route: Skin touch:
There will be no dangerous during normal use. But touch with Sulfuric Acid:
will cause severe irritation, burns and ulceration.

Eye touch:
There will be no dangerous during normal use. But eye touch with Sulfuric Acid:
will cause severe irritation, burns, cornea damage, and blindness. Lead components: May cause eye irritation.

Inhalation:
There will be no dangerous during normal use. But breathing of sulfuric acid vapors or mists may cause severe respiratory irritation. And Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs. And inhalation of Arsenic may cause toxic dangerous.

Ingestion:
Ingestion of internal chemical materials Sulfuric Acid: May cause severe irritation of mouth, throat, esophagus and stomach. Lead Compounds and Arsenic: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping. This may lead rapidly to systemic toxicity and must be treated by a physician.

Health hazards:
For internal components, chemical materials are stored in a hermetically sealed shell, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, there is no physical danger.

Environment hazards:
Ingredients contained within or their ingredients products could be harmful to environment.

Burn & Burst danger:
Highly flammable hydrogen gas is generated during charging and operation of batteries. To avoid risk of fire or explosion, keep sparks or other sources of ignition away from batteries. Do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries. Follow manufacturer's instructions for installation and service.

Section 4- First Aid Measures

The battery is not hazard with eye and skin contact under normal circumstance. In case of the enclosure is damaged, the battery can not be used and touched. It is safety except that the battery is damaged by fire or rupture. The leakage of internal hazardous substance and formation of hazardous substance would occur, take the following measures if contact with the battery.

Skin touch: If there is any unwell reaction, wash thoroughly with soap & water, flush with plenty of water. If irritation persists, seek medical advice.

Eyes touch: Rinse immediately with plenty of water for at least 15 mins. Contact a doctor if symptoms persist.
Inhalation: Remove from exposure site to fresh air. Keep at rest. If breathing is difficult, give oxygen. Obtain medical attention.
Ingestion: Give large quantities of water; do not induce vomiting. Seek medical advice immediately.

Section 5- Fire Fighting Measures

Danger characteristic: Highly flammable hydrogen gas is generated during charging and operation of batteries. To avoid risk of fire or explosion, keep sparks or other sources of ignition away from batteries. Do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries. Follow manufacturer's instructions for installation and service.
Extinguishing Media: CO2; foam; dry chemical

Fire-Fighting: If batteries are on charge, shut off power. Use positive pressure, self-contained breathing

apparatus. Water applied to electrolyte generates heat and causes it to spatter. Wear acid-resistant clothing.
Recommended: N/A
Special measures: N/A
Extinguishing procedures: N/A

Section 6- Accidental Release Measures

Personal precautions: If the battery is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. The preferred response is to leave the area and allow the vapors to dissipate. Avoid to skin and eyes contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerated. If leakage of the battery happens, liquid could be absorbed wit sand, earth or other inert substance and contaminated area should be ventilated meantime.

Environment precautions: Make an limitation for burning and throwing into garbage. should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA.
Cleaning up methods: N.A

Section 7- Handling and Storage

Precautions in handling: Do not expose the battery to excessive physical shocked or vibration. Short-circuiting should be avoided. Prolonged short circuits may damage the battery. Charge the battery according to manufacture's specifications.

Storage conditions: Store batteries in cool, dry, well-ventilated areas with impervious surfaces and adequate containment in the event of spills. Batteries should also be stored under roof for protection against adverse weather conditions. Separate from incompatible materials. Store and handle only in areas with adequate water supply and spill control. Avoid damage to containers. Keep away from fire, sparks and heat.

Precautionary Labeling: POISON - CAUSES SEVERE BURNS DANGER - CONTAINS SULFURIC ACID.

Section 8- Exposure Controls, Personal Protection

Respiratory protection: No necessary under normal use. In case electrolyte leakage from the battery, protect hand with chemical resistant rubber gloves. If battery is burning, leave the area immediately. In abuse, use NIOSH approved acid gas filter mask or self-contained breathing apparatus.

Hand protection: None under normal use. In case of spilling, use Rubber or plastic acid-resistant gloves with elbow-length gauntlet.

Eye protection: None required under normal conditions. Use approved chemical work safety goggles or face shield, if handling a leaking or rupture battery.
Skin protection: No necessary under normal use. Use rubber apron and protective working in case of handling of a rupture battery.

Other protective equipment: Chemical resistance clothing is recommended along with eye wash station and safety shower should be available. Work hygienic practices: Use good chemical hygiene practice.

practice. Wash hands after use and before drinking, eating or smoking. Wash hands thoroughly after cleaning-up component spill caused by leaking battery. No eating, drinking, or smoking in battery storage area. Launder contaminated cloth before reuse.

Section 9- Physical and Chemical Properties

Physical State: The sample is not single chemical material; there are no specific physical and chemical properties
Color: The sample is composed of several components, there is no specific color.
Odor: N.A
Boiling point: N.A
Melting point: N.A

Section 10- Stability and reactivity

Stability: Stable during normal operation conditions.
Conditions/materials to avoid: Avoid overcharging and smoking, or sparks near battery surface. High temperatures-cases decompose at >320°F.

Hazardous decomposition or byproducts: None under normal operating conditions. Carbon dioxide and hydrogen fluoride gas may be generated during combustion of battery.

Ventilation requirements: Well-ventilated area away from incompatible substances

Section 11- Toxicological information

Not applicable under normal conditions of use. Toxicological information of contained chemicals, please see details in section 2.

Section 12- Ecological Information

In most surface water and groundwater, lead forms compounds with anions such as hydroxides, carbonates, sulfates, and phosphates, and precipitates out of the water column. Lead may occur as sorbed ions or surface coatings on sediment mineral particles or may be carried in colloidal particles in surface water. Most lead is strongly retained in soil, resulting in little mobility. Lead may be immobilized by ion exchange with hydrous oxides or clays or by chelation with humic or fulvic acids in the soil. Lead (dissolved phase) is bioaccumulated by plants and animals, both aquatic and terrestrial.

Section 13- Disposal Considerations

Nature of waste: Hazardous Waste

Waste disposal methods:
a) Disposal of the battery should be performed by permitted, professional disposal firms knowledgeable in knowledgeable in federal, state or local requirements of hazardous waste treatment and hazardous waste waste transportation.

b) Incineration should never be performed by battery used. The batteries contained recyclable materials. Recycling options available in your local area should be considered when disposing of this product, through licensed waste carrier.

c) The battery should have their terminal insulated in order to prevent short circuits during transportation to the disposal site.

Note: Consult your local or region authorities, disposal maybe subject to national, state, or local laws.

Section 14- Transport Information

Enerplus's VRLA batteries have passed vibration, pressure differential and free flowing acid tests under CFR 49 173.159(d) and meet IATA Special Provisions A48 and A67.
The batteries are securely packaged, protected from short circuits and labeled "Non-Spillable."
Enerplus's VRLA batteries are exempt from DOT Hazardous Material Regulations and IATA Dangerous Goods Regulations.

Note: The shipper has the option of shipping the batteries Hazmat regulated under UN2800. Additional labeling and paperwork would be required. See CFR 49 and IATA Dangerous Goods Regulations for more information.

IATA PROPER SHIPPING NAME: Batteries, wet, non-spillable
IATA U.N. CLASS: 8
OR Excepted from the requirements because batteries have passed the vibration and pressure differential performance tests, and ruptured case test for nonspillable designation. And, packaged for transport, the terminals are protected from short circuit.

IATA U.N. NUMBER: UN 2800
IATA LABEL: CORROSIVE
ERG Code – 8L



U.S. DOT PROPER SHIPPING NAME: Batteries, wet, non-spillable
U.S. DOT HAZARD CLASS: 8
U.S. DOT ID NUMBER: UN2800
OR Excepted from the requirements because batteries have passed the Vibration and Pressure Differential performance tests, and ruptured case test for Nonspillable designation.

U.S. DOT PACKING GROUP: III

U.S. DOT LABEL: CORROSIVE

IMO PROPER SHIPPING NAME: Batteries, wet, non-spillable Ems # - F-A, S-B
IMO U.N. CLASS: 8
IMO U.N. NUMBER: UN 2800
IMO LABEL: CORROSIVE
IMO VESSEL STOWAGE: A

Section 15- Regulatory information

Special requirement should be according to the local regulatories

Section 16- Other Information

The above information is based on the data of which we are aware and is believed to be correct as of the data hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.